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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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08/936, 559 09/24/97 GU

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EXAMINER

GRIER, L

ART UNIT	PAPER NUMBER
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2644

*10*

DATE MAILED:

04/11/01

**Please find below and/or attached an Office communication concerning this application or proceeding.**

**Commissioner of Patents and Trademarks**

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	08/936,559	GU, JING-LU	
	Examiner Laura A Grier	Art Unit 2644	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) This action is **FINAL**.      2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 2,4-9 and 11-36 is/are pending in the application.
  - 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 2,4-9 and 11-36 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) The proposed drawing correction filed on \_\_\_\_\_ is: a) approved b) disapproved.
- 12) The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. § 119**

- 13) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

**Attachment(s)**

- 15) Notice of References Cited (PTO-892)
- 16) Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 19) Notice of Informal Patent Application (PTO-152)
- 20) Other: \_\_\_\_\_

**DETAILED ACTION**

**EXAMINER'S AMENDMENT**

1. An examiner's amendment to the record appears below.

The application has been amended as follows:

- a) In claim 29, line 1 – circuit – has been inserted.

***Claim Rejections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. **Claims 4-6 and 8-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Bobry.**

Regarding **claim 4**, Bobry discloses a hand-held electronic printing apparatus.

Bobry device includes the capability to serve as an audio recording and playback device (Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pick up and playback. Column 14, lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42-48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178,

connected to a first terminal to drive speaker 170. This first terminal is shown schematically after the junction between the output of element 178 and the input of the element 172. An input circuit is also disclosed, comprising elements 172 and 174. This input circuit is also coupled to the first terminal to process an input signal from speaker 170. Column 14, lines 17-64.

Bobry teaches that "with appropriate voice recognition software, the apparatus 10 can be made responsive to voice commands." Column 14, lines 57-58. These commands activate functions of the unit. Column 14, lines 57-64. This software is equivalent to activation circuitry. Inherently, voice recognition includes the response of an input signal exceeding predefined threshold levels.

Bobry gives examples of output operations including playback (column 14, line 35) and retrieving words from memory (column 14, lines 60-61) to be printed.

Regarding **claim 5**, Bobry discloses everything claimed as applied above (see claim 4). The microprocessor 42 (access circuitry) is capable reading stored digital messages from memory 46 in Fig. 14. Column 14, lines 36-37. The digital signal is then applied to the D/A converter 176. The output of the D/A converter 176 is an analog signal which is then amplified by an amplifier 178 to an appropriate level and applied to the transducer 170, which now functions as a speaker. Column 14, lines 35-41.

Regarding **claim 6**, Bobry discloses everything claimed as applied above (see claim 5). When transducer 170 functions as a microphone, its signal may be boosted to an appropriate level by the amplifier 172, the output of which is applied to the A/D

converter 174. The A/D converter 174 converts the analog signal into digital form, which can be stored in memory 46 by the microprocessor 42. Column 14, lines 30-35.

4. **Claim 8** is rejected under 35 U.S.C. 102(e) as being anticipated by Bobry.

Regarding **claim 8**, Bobry discloses a hand-held electronic printing apparatus. Bobry device includes the capability to serve as an audio recording and playback device (Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pickup and playback. Column 14, lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42-48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178, connected to a first terminal to drive speaker 170. This first terminal is shown schematically after the junction between the output of element 178 and the input of the element 172. An input circuit is also disclosed, comprising elements 172 and 174. This input circuit is also coupled to the first terminal to process an input signal from speaker 170. Column 14, lines 17-64.

The microprocessor 42 (access circuitry) is capable reading stored digital messages from memory 46 in Fig. 14. Column 14, lines 36-37. The digital signal is then applied to the D/A converter 176. The output of the D/A converter 176 is an analog signal which is then amplified by an amplifier 178 to an appropriate level and applied to the transducer 170, which now functions as a speaker. Column 14, lines 35-41.

Regarding **claim 9**, Bobry discloses everything claimed as applied above (see claim 8). When transducer 170 functions as a microphone, its signal may be boosted to an appropriate level by the amplifier 172, the output of which is applied to the A/D converter 174. The A/D converter 174 converts the analog signal into digital form, which can be stored in memory 46 by the microprocessor 42. Column 14, lines 30-35.

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. **Claim 2** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry (U.S. Patent No. 5593236) in view of Baer et al. (U. S. Patent No. 5531600).

Regarding **claim 2**, Bobry discloses a hand-held electronic printing apparatus. Bobry device includes the capability to serve as an audio recording and playback device (Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pickup and playback. Column 14, lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42-48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178,

Art Unit: 2644

connected to a first terminal to drive speaker 170. This first terminal is shown schematically after the junction between the output of element 178 and the input of the element 172. An input circuit is also disclosed, comprising elements 172 and 174. This input circuit is also coupled to the first terminal to process an input signal from speaker 170. Column 14, lines 17-64. However, Bobry's fails to specifically disclose a multiplexing circuit. The examiner maintains that multiplexing circuitry is well known in the art as taught by Baer et al.

Regarding the multiplexing circuitry, Baer et al. discloses an interactive audio-visual work. Baer et al.'s disclosure comprises in figure 6A an integrated circuit (IC2-sound record-playback device) coupled to a speaker which indicates the use of a multiplexing input (column 12, lines 6-8) which constitutes a multiplexing circuit.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Bobry by implementing the technique of multiplexing (or multiplexing circuitry) between the first terminal and the input/output circuits for the purpose of interleaving transmission of the signal of the respective circuits.

8. **Claims 11-12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry in view of Dallas Semiconductor Battery Identification Chip DS2434 Data Sheet, rev. 07/31/97.

Regarding **claim 11**, Bobry discloses a hand-held electronic printing apparatus. Bobry device includes the capability to serve as an audio recording and playback device

(Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pickup and playback. Column 14, lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42-48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178, connected to a first terminal to drive speaker 170. This first terminal is shown schematically after the junction between the output of element 178 and the input of the element 172. An input circuit is also disclosed, comprising elements 172 and 174. This input circuit is also coupled to the first terminal to process an input signal from speaker 170. Column 14, lines 17-64. However, Bobry does not teach that the relevant circuitry is packaged in a three-pin package.

Dallas discloses a three-pin integrated circuit that can be coded with a battery identification and that can actively store information about performance in a 256-bit user memory. The three connectors include power, ground, and a 1-Wire interface. Features, Description, page 1. The 1-Wire interface is a data input/output pin. Pin Description, page 1. The commands supported by "Control Logic and Memory Function Control" in Fig. 1 (page 2) are listed in Table 1 on page 10. Dallas suggests using this device in applications including portable computers, portable/cellular telephones, consumer electronics, and hand held instrumentation. Features, page 1.

Because Bobry teaches integrating the sound processing system detailed above embodied as a single integrated circuit, it would have been obvious to a person of

ordinary skill in the art at the time the invention was made to form Bobry's circuit similarly to the three-pin arrangement disclosed by Dallas. From the disclosure and illustration of Bobry, only three pins are readily required. Any greater number of pins would be space-consuming on a hand held device in which space is critical. Using a single pin for multiplexed data input and output to an integrated memory as suggested by Dallas lends itself ideal for the application of Bobry.

Regarding **claim 12**, Dallas teaches a three-pin PR-35 package. The profile of this package only differs from a TO-92 package in obvious ways. The difference in shape between the two packages produces no unexpected result in connection with this invention.

9. **Claims 13 and 23** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry in view of Giles et al. (U. S. Patent No. 5812561).

Regarding **claim 13**, Bobry discloses a hand-held electronic printing apparatus. Bobry device includes the capability to serve as an audio recording and playback device (Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pickup and playback. Column 14 lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42-48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178, connected to a first terminal to drive speaker 170. This first terminal is shown

schematically after the junction between the output of element 178 and the input of the element 172. "With appropriate voice recognition software, the apparatus 10 can be made responsive to voice commands". Column 14 lines 57-58. These commands activate functions of the unit. Column 14 lines 57-64. This software is equivalent to activation circuitry. However, Bobry fails to specifically disclose the input and output of the device to be an input/out pin of the integrated circuit. The examiner maintains that use of input/output was well known in the art.

Regarding an input/output pin (a single pin), Giles et al. disclose integrated circuitry which uses a bi-directional pin (figure 4-reference 409 and column 9, lines 28-35) which constitutes as an input/output pin.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Bobry by implementing an input/output such as a bi-directional pin for the purpose enable dual function of the integrated circuit of the sound processing system wherein the first terminal is able to receive an input signal via the speaker and in turn provide an output signal via the speaker.

Regarding **claims 14-17**, Bobry and Giles et al. (hereinafter, referred to as "Bobry et al.") discloses everything claimed as applied above (see claim 13). Bobry further discloses an input circuit is also disclosed, comprising elements 172 and 174. This input circuit is also coupled to the first terminal to process an input signal from speaker 170. Column 14 lines 17-64. The microprocessor 42 can function as a control circuit. The microprocessor 42 (access circuitry) is capable reading stored digital messages from memory 46 in Fig. 14. Column 14 lines 36-37. The digital signal is then

applied to the D/A converter 176. The output of the D/A converter 176 is an analog signal which is then amplified by an amplifier 178 to an appropriate level and applied to the transducer 170, which now functions as a speaker. Column 14 lines 35-41.

Wherein, A/D converter 174 relays a signal to the memory via the microprocessor.

Regarding **claim 19**, as Bobry et al. discloses everything claimed as applied above (see claim 13). However, Bobry does not teach that the relevant circuitry is packaged in a three-pin package.

Dallas discloses a three-pin integrated circuit that can be coded with battery identification and that can actively store information about performance in a 256-bit user memory. The three connectors include power, ground, and a 1-Wire interface. Features, Description, page 1. The 1-Wire interface is a data input/output pin. Pin Description, page 1. The commands supported by "Control Logic and Memory Function Control" in Fig. 1 (page 2) are listed in Table 1 on page 10. Dallas suggests using this device in applications including portable computers, portable/cellular telephones, consumer electronics, and hand held instrumentation. Features page 1.

Because Bobry teaches integrating the sound processing system detailed above embodied as a single integrated circuit, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to form Bobry's circuit similarly to the three-pin arrangement disclosed by Dallas. From the disclosure and illustration of Bobry, only three pins are readily required. Any greater number of pins would be space-consuming on a hand held device in which space is critical. Using a

single pin for multiplexed data input and output to an integrated memory as suggested by Dallas lends itself ideal for the application of Bobry.

10. **Claims 7, 18, and 24** are rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry et al. and further in view of Armstrong (U. S. Patent No.4554411).

Bobry, and Bobry et al. discloses the invention noted above in the rejections of claims 4, 13, and 20, respectively.

Armstrong discloses an intercom system including a door unit comprised of a single microphone-speaker and a master unit including respective amplifiers for operating the door unit as a microphone and speaker, respectively. Respective electronic switches are operated by a control voltage and an inverted control voltage, respectively, for connecting the corresponding amplifiers to the door unit. In order to prevent noise during switching operations, a capacitance circuit is coupled between inputs of the corresponding switches to delay turning on of a switch during a discharge of the capacitance after the opposite switch has been turned off. Column 2 lines 13-26. The delay circuit formed by the capacitance 361, resistances 362 and 364 and the diodes 363 and 367 is particularly advantageous in preventing the door speaker line 52 from being simultaneously connected to the output amplifier 354 and the input of amplifier 370. This prevents activation of the circuit during the time-out period and prevents substantial feedback through the system, which could cause loud unwanted signals on the station speakers. Column 16 lines 13-27.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the delay circuit of Armstrong in the bilateral transducer of Bobry because such a delay circuit would enhance the quality of the signal as the transducer switches between the two functions taught by Bobry.

11. **Claim 22** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry in view of Willy (U. S. Patent No. 3979566).

Bobry discloses the invention noted above in the rejection of claim 20. Willy discloses an improved "electromagnetic transducer that can function as either a speaker, a microphone, or a control device". Column 3 lines 3-6. In its application of a control device, tabs 124 (Figs. 19 and 20) provide bearing surfaces for armatures 116 and 118. Movement of these armatures, by touching, for example, produces electrical control responses from the speaker. Column 9 lines 44 though column 10, line 14.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the transducer taught by Willy in the audio device of Bobry because using this transducer would allow a greater degree of flexibility in controlling the device without increasing the number of input/output ports required.

12. **Claim 29-31, and 33** is rejected under 35 U.S.C. 103(a) as being unpatentable over Bobry in view of Giles et al.

Regarding **claim 29-31**, Bobry discloses a hand-held electronic printing apparatus. Bobry device includes the capability to serve as an audio recording and

playback device (Column 14, lines 20-23). The recording time available will be limited only by the amount of memory available. A single transducer 170 may serve as both speaker and microphone for audio pickup and playback. Column 14 lines 28-29. Bobry teaches that the sound processing system may comprise an integrated circuit in which "separate devices are not needed". Column 14, lines 42 48. As illustrated in Fig. 14A, the sound processing system includes an output circuit comprising elements 176 and 178, connected to a first terminal to drive speaker 170, and memory 46 (ROM-nonvolatile memory). This first terminal is shown schematically after the junction between the output of element 178 and the input of the element 172.

The microprocessor 42 (access circuitry) is capable reading stored digital messages from memory 46 in Fig. 14. Column 14 lines 36-37. The digital signal is then applied to the D/A converter 176. The output of the D/A converter 176 is an analog signal which is then amplified by an amplifier 178 to an appropriate level and applied to the transducer 170, which now functions as a speaker. Column 14 lines 35-41. Wherein, A/D converter 174 relays a signal to the memory via the microprocessor. However, Bobry fails to specifically disclose the input and output of the device to be an input/out pin of the integrated circuit. The examiner maintains that use of input/output was well known in the art.

Regarding an input/output pin (a single pin), Giles et al. disclose integrated circuitry which uses a bi-directional pin (figure 4-reference 409 and column 9, lines 28-35) which constitutes as an input/output pin.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Bobry by implementing an input/output such as a bi-directional pin for the purpose enable dual function of the integrated circuit of the sound processing system wherein the first terminal is able to receive an input signal via the speaker and in turn provide an output signal via the speaker.

Regarding **claim 33**, Bobry et al. discloses everything claimed as applied above (see claim 29). Bobry further discloses "with appropriate voice recognition software, the apparatus 10 can be made responsive to voice commands". Column 14 lines 57-58. These commands activate functions of the unit. Column 14 lines 57-64. This software is equivalent to activation circuitry.

Regarding **claim 32**, Bobry et al. discloses everything claimed as applied above (see claim 30). However, Bobry fails to specifically disclose the memory as FLASH EEPROM memory. The examiner takes official notice of the fact that FLASH EEPROM memory was well known in the art.

It would have been obvious to one of the ordinary skill in the art at the time the invention was made to modify the invention of Bobry et al. implement the use of FLASH EEPROM memory for the purpose of providing reprogramming and stable storage for long periods of time. Wherein the use of FLASH EEPROM memory is one the well known memory techniques in the art of storing information signals (e.g., audio).

Regarding **claim 20 and claim 34**, they are interpreted and thus rejected for the same reasons set forth above in the rejection of **claim 4**. Since **claim 20 and claim 34**

disclose a method, which correspond to the apparatus of **claim 4**, the method is inherent in that it simply provides functionality for the structure of **claim 4**.

Regarding **claims 21, 25-28**, limitations of these claims are anticipated by Bobry as shown above.

Regarding **claims 35-36**, they have been interpreted and thus rejected for the same reasons set for in **claims 22-23**.

#### ***Response to Arguments***

13. Applicant's arguments with respect to claims 2, 4-9, and 11-28 have been considered but are moot in view of the new ground(s) of rejection.

Applicant mainly argues that the prior art of Bobry does not teach a multiplexing circuit and/or an input/output pin. The examiner has provided secondary references to support teachings of a multiplexing circuit, as well as an input/output pin (a single pin) to modify the invention of Bobry.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura A. Grier whose telephone number is (703) 306-4819. The examiner can normally be reached between 7:30 am - 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Forester W. Isen can be reached on (703) 305-4386. The fax phone

numbers for the organization where this application or proceeding is assigned are (703) 308-6306 for regular communications and (703) 308-6306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4700.

LAG *[Signature]*  
March 29, 2001

*Reister*  
FORESTER W. ISEN  
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